

–Referring to Figure 18, a schematic diagram of a geometric formula for determining the distance of a subject to a perimeter is illustrated. When calculating the angles for the queue, the law of cosines is used to calculate the angle A shown in Figure 18 and in the following “Law of Cosine” equations. When this angle is greater than 151 degrees, the point is stored as a critical point for boundary purposes. Simply connecting the critical points then forms the boundary. Interpolation can also be used to smooth a boundary.

$$a^2 = b^2 + c^2 - (2bc \cdot \text{Cosine } A)$$

A = Inverse Cosine $((b^2 + c^2 - a^2) / 2bc)$ —

The Examiner is requested to add Figures 14A ~ 18 on the attached sheets to the subject application.

Please amend the claims as follows:

Please add the following new claims:

- (a) a receiver operable to receive a positioning signal including actual position coordinates of a movable device in a first space;
- (b) a memory module including a memory to store predefined position coordinates for defining boundaries of a second space, the second space being located within the first space;

- (c) a processor module connected to the receiver and the memory module and operable to compare the actual position coordinates to the predefined position coordinates; and
- (d) an indicator connected to the processor module and operable to indicate when the actual position coordinates are outside the predefined position coordinates for indicating that the device is outside the second space.

13. (New) The boundary detection device of claim 12, wherein the positioning signal is a global positioning system signal.

14. (New) The boundary detection device of claim 12, wherein the receiver is a radio frequency receiver.

15. (New) The boundary detection device of claim 12, further including high voltage circuitry operable to deliver an electrical shock to a pet when the actual position coordinates are outside the predefined position coordinates for indicating the pet is outside the second space.

16. (New) The boundary detection device of claim 12, further including an audible alarm operable to produce a sound when actual position coordinates of the movable device are outside the predefined position coordinates for indicating the movable device is outside the second space.

17. (New) The boundary detection device of claim 12, further including a transmitter operable to transmit an alarm signal when actual position coordinates of the movable device are outside the predefined position coordinates for indicating the movable device is outside the second space.

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18. (New) The boundary detection device of claim 12, wherein the memory module is operable to store a set of actual position coordinates in the memory as the operator moves about a boundary for defining the boundary of the second space.

19. (New) The boundary detection device of claim 12, wherein the device includes a housing for enclosing the receiver, the memory module, the processor module, and the indicator in the movable device for facilitating movement of the movable device about the first space.

20. (New) A boundary detection system, comprising:

(a) a boundary detection device, comprising:

- (i) a first receiver operable to receive a positioning signal including actual position coordinates of a movable device in a first space;
- (ii) a memory module including a memory to store predefined position coordinates for defining boundaries of a second space, the second space being located within the first space;
- (iii) a processor module connected to the first receiver and the memory module and operable to compare the actual position coordinates to the predefined position coordinates; and
- (iv) a transmitter connected to the processor module and operable to transmit an alarm signal when the actual position coordinates are outside the predefined position coordinates for indicating that the device is outside the second space;

(b) a base station, comprising:

- (i) a second receiver operable to receive the alarm signal from the transmitter; and
- (ii) an indicator connected to the second receiver and operable to indicate the receipt of the alarm signal.

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21. The boundary detection system of claim 20, wherein indicator indicates the receipt of an alarm signal to an operator.
22. (New) A method for indicating a position of a movable device with respect to a geographical area, the method comprising:
- (a) defining boundaries of a first space with a set of predefined position coordinates, the first space being located with a second space;
 - (b) receiving a positioning signal indicating actual position coordinates of a movable device in the second space;
 - (c) comparing the actual position coordinates to the predefined position coordinates; and
 - (d) indicating when the actual position coordinates are outside the predefined position coordinates for indicating that the device is outside the first space.
23. (New) The method of claim 22, wherein the positioning signal is a global positioning system signal.
24. (New) The method of claim 22, further including delivering an electrical shock to a pet when the actual position coordinates are outside the predefined position coordinates for indicating that the pet is outside the first space.
25. (New) The method of claim 22, further including producing a sound when actual position coordinates of the movable device are outside the predefined position coordinates for indicating that the movable device is outside the first space.

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